GEOPHYSICS

A Journal of General and Applied Geophysics

VOLUME CONTENTS

Volume XXIX Nos. 1-6

1964

Published by the

SOCIETY OF EXPLORATION GEOPHYSICISTS

VOLUME XXIX FEBRUARY, 1964 NUMBER 1

Presidential address—The pursuit of competence ..... *John C. Hollister* 1
Keynote address—There's fun ahead ..... *Ira H. Cram* 4
Geophysical research, The American Petroleum Institute and The Petroleum Research Fund ..... *R. B. McEuen, I. H. Cram, Jr., and H. A. Slack* 9
Energy and vector record-sections ..... *Vladimir Baranov and Claude H. Picou* 17
Regionals and residuals in seismic prospecting for stratigraphic features ..... *Milton B. Dobrin and W. G. Rimmer* 38
The calculation of total-intensity magnetic anomalies for certain bodies by digital computer ..... *James T. Hughson* 54
Numerical calculation of the formula of reduction to the magnetic pole ..... *Vladimir Baranov and H. Naudy* 67
Basement depths from widely spaced aeromagnetic profiles in Kansas and Nebraska ..... *Joel S. Watkins* 80
The magnetization of a rock containing magnetite and hemoilmenite ..... *Charles M. Carmichael* 87
Application of inverse filters to induction log analysis ..... *C. F. George, Jr., H. W. Smith, and F. X. Bostick, Jr.* 93

REVIEW ARTICLE

Basic probabilistic methods in geological search ..... *A. Kyrala* 105

DEPARTMENTS

Short Notes:

The upward continuation of an aeromagnetic anomaly in Washington ..... *Nelson C. Steenland and W. D. Gibbons* 109
The error in least-squares inverse filtering ..... *J. F. Claerbout and E. A. Robinson* 118

Discussion:

"Deep gravity interpretation by stripping" by Sigmund Hammer ..... *T. C. Richards* 121
Reply by author ..... *Sigmund Hammer* 121
Reviews 123
Publications Received 128
Memorial
Ralph Semmes Jackson 129
Patents 131
Contributors 140
Membership Applications Received 143
Announcements 144
Abstracts
Bulletin (*Izvestiya*) 145
Geophysical Prospecting 146
Personal Items 149

VOLUME XXIX APRIL, 1964 NUMBER 2

VELA UNIFORM

Special Issue I

Foreword ..... *C. C. Bates* 151
Microseisms and an attempted application to exploration ..... *M. Nafi Toksöz* 154
Seismic propagation paths, regional traveltimes, and crustal structure in the western United States ..... *David J. Stuart, John C. Rolter, Wayne H. Jackson, and George B. Mangan* 178
Operational magnification and physical environment of seismograph stations ..... *S. A. Alsup and J. W. Guyton* 188
Detection of *P* waves from weak sources at great distances ..... *Jon F. Claerbout* 197
A moving-time-window signal-spectra process ..... *Arthur McGarr, Renner B. Hofmann, and George D. Hair* 212
A study of a three-dimensional seismic detection system ..... *R. A. Broding, N. J. Bentley-Llewellyn, and Daniel P. Hearn* 221
Techniques of on-site inspection ..... *Warren H. Westphal and Sylvan Rubin* 250
Propagation of a pulse in a fluid sphere ..... *Z. Alterman and P. Kornfeld* 259
Motion product seismograms ..... *J. E. White* 288
Editorial note ..... *F. A. Van Melle* 299

DEPARTMENTS

Short Note:
Gravitational exploration and the principle of equivalence ..... *Stephen Thyssen-Bornemisza* 301
Reviews 304
Publications Received 308
Patents 309
Contributors 318
Membership Applications Received 325
Nominees for 1964–65 Executive Committee 326
Announcements 330
Abstracts 332
Bulletin (*Izvestiya*) 332
Personal Items 334

VOLUME XXIX JUNE, 1964 NUMBER 3

Geophysical studies of basin structures along the eastern front of the Sierra Nevada, California ..... *J. H. Healy and Frank Press* 337
Stress behavior in the neighborhood of sharp corners ..... *Frank C. Karal, Jr. and Samuel N. Karp* 360
The response of an elastic plate submerged in a liquid half-space to explosive sound ..... *J. H. Rosenbaum* 370
Principles of digital filtering ..... *E. A. Robinson and Sven Treitel* 395
Bonding of layers in two-dimensional seismic modeling ..... *M. N. Toksöz and Fred Schwab* 405
Mathematical formulation of salt-dome dynamics ..... *Z. F. Danes* 414
A comparison of the various parameters employed in the variable-frequency induced-polarization method ..... *Philip G. Hallof* 425
How to evaluate exploration prospects ..... *Ben F. Rummerfield and Norman S. Morrisey* 434

DEPARTMENTS

Short Note:
Determination of Bouguer density in shallow holes ..... *Stephen Thyssen-Bornemisza* 445
Letter to the Editor 447
Reviews 449
Publications Received 453
Memorial
Raiford Harold Burton 454
Patents 456
Contributors 466
Membership Applications Received 469
Announcements 471
Abstracts 472
Bulletin (*Izvestiya*) 472
Geophysical Prospecting 476
Personal Items 478

VOLUME XXIX AUGUST, 1964 NUMBER 4

Special Issue on MAGNETIC METHODS

JAMES AFFLECK, Special Editor

Foreword ..... *James Affleck* 481
Review article—Aeromagnetics ..... *M. S. Reford and John Sumner* 482
Magnetic anomalies due to prism-shaped bodies with arbitrary polarization ..... *B. K. Bhattacharyya* 517
Magnetic anomalies over thin sheets ..... *M. S. Reford* 532
Low-amplitude aeromagnetic anomalies in southeastern Missouri ..... *J. W. Allingham* 537
Magnetic investigations of a ring dike, Buell Park, Arizona ..... *R. L. DuBois and W. W. Carey* 553
Magnetic and tectonic regionalization on Texada Island, British Columbia ..... *D. H. Hall* 565
A statistical analysis of some aeromagnetic maps from the northwestern Canadian Shield ..... *C. W. Horton, W. B. Hemphill, and A. A. J. Hoffman* 582
Expression of E-W fractures in magnetic surveys in parts of the U. S. A. ..... *M. D. Fuller* 602
Short Note—Approximation of residual total-magnetic-intensity anomalies ..... *A. L. Kontis and G. A. Young* 623

DEPARTMENTS

Reviews 628
Publications Received 632
Patents 633
Contributors 643
Membership Applications Received 647
SEG Committees 648
Announcements 652
Abstracts
Bulletin (*Izvestiya*) 657
Geophysical Prospecting 658
Personal Items 660
Calendar of Meetings 661

VOLUME XXIX OCTOBER, 1964 NUMBER 5

VELA UNIFORM, Special Issue II

Foreword ... *F. A. Van Melle* 663
Seismic signal enhancement with three-component detectors ... *Michael Shimshoni and Stewart W. Smith* 664
Wide-band extraction of mantle *P* waves from ambient noise ... *Milo Backus, John Burg, Dick Baldwin, and Ed Bryan* 672
Three-dimensional filtering with an array of seismometers ... *John P. Burg* 693
Theoretical prediction of seismic noise in a deep borehole ... *Robert L. Sax and Royal A. Hartenberger* 714
Signal and noise in deep wells ... *Edward J. Douze* 721
Converted waves in refraction surveys over markers with variable depth ... *D. H. Hall* 733
Collection and analysis of Pacific Ocean-bottom seismic data ... *W. A. Schneider, P. J. Farrell, and R. E. Brannian* 745
Short Note:
Recommended explosion-crater nomenclature ... *S. M. Hansen, M. D. Nordyke, D. E. Rawson, W. C. Sherman, J. L. Spruill, W. L. Steinriede, and J. Toman* 772

Miscellaneous Geophysical Papers

Borehole gravity meter and its application ... *R. R. Goodell and C. H. Fay* 774
A new data-processing technique for the elimination of ghost arrivals on reflection seismograms ... *William A. Schneider, Kenneth L. Larner, J. P. Burg, and Milo M. Backus* 783
The elusive first arrival ... *J. G. Hagedoorn* 806
Electromagnetic fields of a small loop antenna on the surface of a polarizable medium ... *B. K. Bhattacharyya* 814
Conductivity spectra of rocks from the Craigmont ore environment ... *D. C. Fraser, N. B. Keevil, Jr., and S. H. Ward* 832
A study in induced polarization ... *L. A. Anderson and G. V. Keller* 848

Departments

Reviews ... 865
Publications Received ... 867
Memorials
Ernest John Marti ... 868
Paul Weaver ... 870
Patents ... 873
Contributors ... 885
Membership Applications Received ... 890
Announcements ... 891
Program and Abstracts of the 25th Annual Meeting of the E.A.E.G. ... 893
Abstracts
Bulletin (*Izvestiya*) ... 909
Geophysical Prospecting ... 911
Personal Items ... 913

VOLUME XXIX DECEMBER, 1964 NUMBER 6

Special Issue for the FIELD GEOPHYSICIST

Foreword ..... *F. A. Van Melle* 915
Sea magnetometer reconnaissance of Hudson Bay ..... *Peter Hood* 916
Signal-to-noise ratio and record quality ..... *Arne Junger* 922
Method using ellipses to interpret seismic reflection data ..... *Gary S. Gassaway* 926
Regional velocity gradient from normal moveouts ..... *William A. Knox* 935
Reflection survey at Barracuda Fault ..... *L. Paitson, C. H. Savit, D. M. Blue, W. A. Knox* 941
An example of Prairie-Evaporite mapping in the Minton area of Saskatchewan employing the seismic method ..... *D. L. Surjik and George D. Hobson* 951
Datum corrections in glacial drift ..... *A. R. Patterson* 957
Southwestern Oklahoma—A geophysical case history of a basin ..... *William E. Laing* 968
Making geophysics meaningful to geologists ..... *Harrison T. Brundage* 985
Geophysical activity in 1963 ..... *Neal J. Smith* 992

REVIEW ARTICLES

The causes of noise in seismic reflection and refraction work ..... *V. A. Olhovich* 1015
Techniques of seismic recording ..... *Antonio C. Limón* 1031

DEPARTMENTS

Reviews 1046
Erratum 1051
Publications Received 1052
Memorial
Burton McCollum 1053
Patents 1055
Contributors 1066
Membership Applications Received 1071
Letter to the Editor 1072
Reply by the Editor 1072
Announcements 1073
Abstracts
Bulletin (*Izvestiya*) 1076
Personal Items 1079
Index to Volume XXIX 1082